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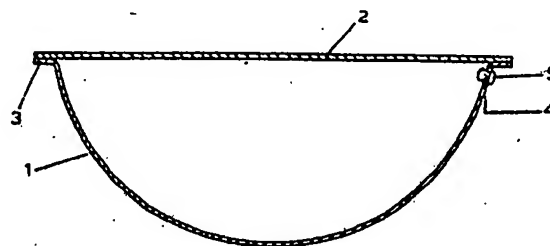
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54 Training top for equilibrium exercises.

57 A training top for equilibrium exercises consisting of a top body substantially in the shape of an inverted dome (1), round or at least in part rounded off, having on it a disc-shaped supporting platform (2) with a diameter equal to or slightly larger than the diameter of the part of the dome which carries the supporting platform, the dimensioning being such that the user can stand on the platform with both feet.

The body of the top is a substantially hollow body made of hard plastic material having therein at least one filling reservoir for the accommodation of a mass and balance providing filling liquid or solid. It is further possible to provide the rim of the platform with an annular second reservoir for a filling substance.



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Training top.

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The invention relates to a training top for equilibrium exercises, consisting of a top body, substantially in the shape of an inverted, round or at least in part rounded off dome with thereon a round disk-shaped supporting platform
5 the diameter of which is equal to or slightly larger than the diameter of the part of the dome, connecting with this supporting platform, and sufficiently large to allow a user to stand on it with both feet.

Such training tops are known and are used in physio
10 therapy amongst others for correction of the position of the back. Such a training top, useful for that purpose, is a massive body, made of wood, and has an external shape, which corresponds more or less with that of an inverted bowler. In use, such a training top is positioned with its round
15 (dome) bottom side on the ground, in which position the training top will remain standing. Subsequently a patient will get to stand on the supporting platform with both his feet, whereby an unstable equilibrium condition is created, as the centre of gravity of patient plus training top is located
20 far above the training top. The patient is stretching his back and training his dorsal muscles by maintaining his equilibrium on the training top.

Though such training tops might be particularly useful also for use at home, for example for back- and
25 balance exercises, they have been used mainly in physiotherapeutical clinics hitherto for the treatment of back conditions and the like. One of the reasons why these training tops do not find broader acceptance is the fact that they constitute an expensive and rather unhandy article of sale as a
30 consequence of their massiveness.

It is now the object of the invention to provide a training top as described in the introduction, which can be provided as a handy article at a relatively low price, thus
allowing anyone who wishes to do so, to acquire such a training
35 top without problems.

To that purpose the training top according to the invention is characterized in that the body of the top is a substantially hollow body, made of hard plastic material, and

with therein at least on filling-reservoir for accommodation of a mass and balance providing filling substance.

The invention is based on the understanding, that the desired properties of the training top are based in essence on the one hand on the shape and on the other hand on the mass. In accordance with the invention substantial saving is obtained with respect to the mass while maintaining the shape, as instead of the rather expensive massive body a relatively inexpensive hollow body is taken. However, as for a proper functioning of the training top a certain mass is required, the invention provides subsequently the possibility of filling the hollow body again partially or completely with a liquid, in particular water, or a solid granular material, for example sand, thus obtaining a training top, which meets all proper requirements, both with respect to shape and with respect to mass.

As long as the training top has not yet been filled with a liquid or granular material, it is relatively light, which largely facilitates transportation of large numbers of these training tops, as well as storage thereof, whereas a purchaser can easily take along his training top from a shop filling it for example with water only when he actually wishes to use it.

To fill the hollow body with water does not create any problem, and may be carried out for example with co-delivered tubing, a syringe, and the like, while filling- and deaerating-apertures serving to that purpose, can be closed off easily, for example by plugs. Another possibility consists in making the filling- and deaerating apertures as valves, which can be closed off by hand.

The embodiment of the support top can be efficiently such, that the body of the top consists of a dome-shaped bowl, covered by a disk-shaped cover-plate, which is sealed off at the upper rim of the bowl, or is forming an integral part therewith, and that filling- and deaerating apertures have been made in the bowl somewhat below the cover-plate. This positioning of the filling- and deaerating apertures, in particular the deaerating aperture, is preferred as thus an optimal deaeration of the hollow body is obtained on filling.

that the upper rim of the bowl is deflected outward to a horizontal support flange, and that the cover-plate has a diameter corresponding with the outer diameter of this support flange, and is sealed at the upper face of the flange.

5 This embodiment has the big advantage, that as a consequence of the relatively large surface area of the flange a very strong and reliable sealing between cover-plate and bowl is made possible.

According to a further embodiment of the invention
10 this support flange has a vertically extending outer rim, whereon the cover-plate is mounted, with the filling- and deaeration apertures being introduced in this perpendicular rim. This latter embodiment provides the advantage, that the deaeration aperture has optimal working conditions, while in
15 addition the training top shows a very attractive appearance seen from the outside.

According to another embodiment of the invention the body of the top consists of a dome-shaped bowl, covered by a disc-shaped cover-plate, which is sealed at the upper
20 rim of the bowl, or otherwise is forming an integral part therewith, which cover-plate extends beyond the rim of the bowl and changes over into an annular filling reservoir, of which the upper surface coincides with the upper surface of the cover-plate. By functional dimensioning of the volume
25 of the annular reservoir with respect to the total volume of the training top it will suffice to use only this annular reservoir as filling body, that may be filled for example with water or a granular material. On proper dimensioning a surprisingly good balance of the training top will be obtain-
30 ed.

In dependence on the selection of material it may be very efficient that the cover-plate is heavier between the rim of the bowl and the annular filling reservoir.

In this embodiment the annular part may be used
35 as sole filling reservoir; however, it is also possible to construct the bowl part as a second filling reservoir, that can be filled independently from the annular reservoir. In this way the user has the possibility to build in various degrees of difficulty in his training top.

40 A practical embodiment is further consisting in

that the annular reservoir has been constructed for accepting a metallic annular tape, e.g. of steel, acting as filling material. Such an embodiment the user does not have to fill himself, but he can use the training top immediately
5 after it has been purchased.

Though other forms are also possible, it is preferred in each one of the embodiments as described above that the bowl, at least at its bottom part, has substantially the shape of a spherical cover, the centre of which is
10 located above the upper surface of the cover-plate. Such a shape allows a not too difficult and still efficient balancing by the user of the training top, and in addition provides a favourable distribution of forces with respect to load. At the upper end of the bowl the spherical shape is
15 less necessary, and it is possible to apply there a biased straight section or a section with another curvature. The size of the spherically shaped cover forming the lower part of the bowl is preferably selected such, that the borderline tangent thereof contacts the rim of the support-platform, or
20 the lower end of the annular reservoir.

For the material of the training top any suitable plastic material may be used, capable of being compressed or manufactured as moulds and being of sufficient strength to resist the relatively high load of the weight of an adult.
25 As examples of materials which are particularly suitable can be mentioned plexiglass and various polyesters.

The invention will now be elucidated by means of examples of embodiments with reference to the drawings. In the drawings:

30 Fig.1 shows a first embodiment of a training top according to the invention, presented in cross-section,

Fig.2 shows a second embodiment, also in cross-section,

Fig.3 shows in cross-section half of an embodiment, provided with an annular reservoir, and
35

Fig.4 shows a variation of the embodiment of Fig.3.

In Fig.1 a first embodiment is presented of a training top according to the invention. As will be seen in

spherical cover, hermetically sealed off by a cover-plate 2. The bowl 1 and the cover-plate are both made of a suitable, sufficiently strong plastic material, in the relevant case a plexiglass.

5 As will be seen in the drawing, the upper rim of the bowl 1 is turned outward horizontally to a flange 3, which provides a support rim for the cover-plate 2, attached thereon. Thus a very tight and hermetic sealing is achieved between bowl 1 and cover-plate 2.

10 Just below the flange 3 a filling- and/or deaeration aperture 4 is located, which can be closed by means of a closing-plug, in the example shown a self-locking springplug 5.

For an efficient use of the embodiment of a training top as presented in Fig.1, it is first of all filled with water, which can be done by a suitable type of syringe, or with an insertable nozzle (not shown), in which latter case it is preferred that separate filling- and deaeration-apertures 4 are present. After completion of filling the hollow body, provided by bowl 1 and cover-plate 2, with water the aperture (or apertures) 4 are closed by means of plug 5, whereafter the support-top is ready to be used for equilibrium exercises in the known manner.

The liquid filling of the support-top according to the invention has two functions; on the one hand it provides a proper distribution of pressure, thus excluding the possibility, that as a consequence of unilateral load a deformation or any damage may occur, whereas on the other hand this increase in mass provides the support-top with the desired properties to allow exercising in the same manner as is customary with the known massive support-top. If the support top according to the invention would be used in an unfilled condition, it is highly instable, thus making it extremely difficult for an individual to stand on the support-top.

35 In order to prevent undesired slipping, the upper face of the cover-plate 2 can be provided with a ribbed pattern, for example in diamond-shape or as concentric circles (not shown) for obtaining a better grip.

Fig.2 shows a modification of the embodiment of Fig.1, also in cross-section. The corresponding parts have

been indicated therein with the corresponding reference numbers.

As will be seen in the drawing, the training top of Fig. 2 differs from that of Fig. 1 in that the horizontal flange 3 of the bowl 1 comprises a vertical endrim 6, on which latter the cover-plate 2 is resting. In this embodiment the sealing surface between bowl 1 and cover-plate 2 is consequently smaller than in the embodiment of Fig. 1, which makes this support-top somewhat more vulnerable. However, as the protruding parts above the flange 3 will be filled completely with water, the distribution of pressure below the cover-plate 2 for complete filling with water will be such, that in this case as well a proper sealing will be guaranteed and no damage as a consequence of excess load will occur at the welding positions.

A complete filling with water is quite well possible in this embodiment, as the filling- and deaeration-apertures have been provided for in the upright rim 6, thus warranting a complete deaeration during filling with water, and thus allowing a complete filling.

This latter embodiment offers a somewhat more attractive appearance than the first one, and is otherwise equally suitable for an efficient functioning of the training top. For a practical embodiment of the training top according to Fig. 2 it may be made of a suitable plexiglass, with the bowl being spherical with a radius of 15 cm, with the distance from the lower end of the bowl up to the outer surface of the cover-plate in the direction of the axis amounts to 13 cm. The total diameter of the cover-plate amounts to 35 cm therein, corresponding with the outer diameter of the upright rim.

In Fig. 3 a third embodiment is shown in half axial cross-section. Therein the actual bowl is defined by a lower part 7 in the shape of a spherical cap, onto which a straight conical part 8 is fitting. The bowl thus formed is hermetically sealed at the upper end by a cover-plate 9, which extends beyond the bowl in a thickened portion 10, onto which an annular reservoir fits, of which the upper wall 12 is in line with the upper wall of cover-plate 9 and the extension 10.

hot moulding of a suitable thermo-setting plastic material, such as for example plexiglass.

The annular reservoir can be filled with water or other filling material, for which purpose respectively
5 filling and deaerating apertures (not shown) have been provided.

Prior to use of such a training top the user will fill the annular reservoir 10 with water, and by a proper dimensioning, for example that shown in the Figure, an
10 excellent balance is achieved without the need of filling the bowl-section as well.

However, the embodiment may be such, that filling- and deaeration apertures are also present in the bowl-section, and in that case there are three possibilities
15 for balancing, to wit: filling of the annular canal only, filling of the bowl only, or both.

As can be seen from the drawing the spherical cap part 7 of the bowl extends up to a point, where the limit tangent (presented as a broken line) contacts at the extreme
20 lower end of the annular canal 11. This is required and sufficient, as the top in use can not topple any further than up to this point. If the spherical cover would be allowed to extend up to the cover-plate 9, the position of the annular reservoir 11 would suffer at the expense of the
25 proper dimensioning with respect of a proper balance. Therefore the part 8 has been extended straight, thus allowing sufficient space for the annular canal.

As shown in Fig. 4 it is also possible to prolong the spherical cap part 7 in a sharper curved section
30 13, thus achieving the same result. The ultimate choice depends on the choice of material and thickness of material, and dimensioning factors. The substantial advantage of the embodiments shown in Figs. 3 and 4 is, that they allow more possibilities than in the embodiments according to Figs. 1
35 and 2. While in the embodiments according to Figs. 1 and 2 only the reservoir as formed by the bowl can be filled, thus imposing exercising always under the same conditions, however in the embodiments of Figs. 3 and 4 it is possible to select between the possibilities of only filling
40 the annular reservoir, only filling the bowl-shaped reser-

voir or filling both, thus providing different degrees of difficulty.

5 Though in the above the invention has been described by means of four embodiments, it will be obvious, that
there are many variations and modifications possible, which
fall within the scope of the invention. Thus it is for
example possible to provide for a sub-compartment in the
bowl-shaped section, thus introducing less mass in the
bowl-shaped reservoir. An interesting embodiment is also
10 one wherein the annular reservoir is filled with a metallic
strip or rod, for example iron or other sufficiently heavy
material, that may serve as a filling material. Such an
embodiment can then be made as such and be marketed, so
that the user does not need to fill a reservoir first,
15 but can use the training top straight away.

Further variations and modifications of the training top according to the invention will be obvious to the expert in this field after the above.

Claims:

1. Training top for equilibrium exercises, consisting of a top body, substantially in the shape of an inverted, round or at least in part rounded off dome with thereon a round, disk-shaped supporting platform, the diameter of which is equal to or slightly larger than that of the part of the dome, connecting with this supporting platform, and sufficiently large to allow a user to stand on it with both his feet, characterized in that the top body is a substantially hollow body, made of hard plastic material, and provided with at least one filling reservoir therein for accepting of a filling material capable of providing mass and balance.
2. Training top according to claim 1, characterized in that the filling material is a liquid.
3. Training top according to claim 2, characterized in that the liquid is water.
4. Training top according to claim 1, characterized in that the filling material is a granular material such as sand.
5. Training top according to one of the preceding claims, characterized in that the top body consists of a dome-shaped bowl, covered with a disk-shaped cover-plate, which is sealed at the upper rim of the bowl, or is forming an integral part therewith and that filling- and deaeration apertures have been provided in the bowl somewhat below the cover-plate.
6. Training top according to claim 5, characterized in that the upper rim of the bowl is turned outward to a horizontal support flange, and that the cover-plate has a diameter corresponding with the outer diameter of this support flange, and is sealed to the upper surface of the flange.

7. Training top according to claim 6, characterized in that the supporting flange is provided with a vertical upward outer rim, onto which a cover-plate is mounted, and that the filling- and deaeration apertures have been provided in this upright rim.

8. Training top according to one of the claims 1-4, characterized in that the top body consists of a dome-shaped bowl, covered by a disk-shaped cover-plate, sealed at the upper rim of the bowl, or forming an integral part therewith, said cover-plate extending beyond the rim of the bowl and converting into an annular filling reservoir, the upper surface thereof coinciding with the upper surface of the cover-plate.

9. Training top according to claim 8, characterized in that the cover-plate has been thickened between the rim of the bowl and the annular filling reservoir.

10. Training top according to claim 8 or 9, characterized in that the bowl-section is forming a second filling reservoir, independent of the annular reservoir.

11. Training top according to claim 8, 9 or 10, characterized in that the annular reservoir is carried out for accepting a metallic annular strip or rod, serving as filling material.

12. Training top according to one of the claims 5-11, characterized in that at least the bottom section of the bowl in essence has the shape of a spherical cap, having its spherical centre located above the upper surface of the cover-plate.

FIG.1

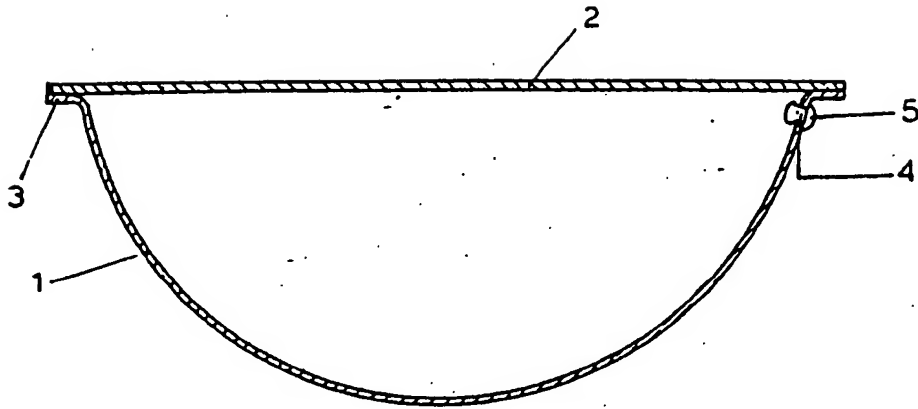
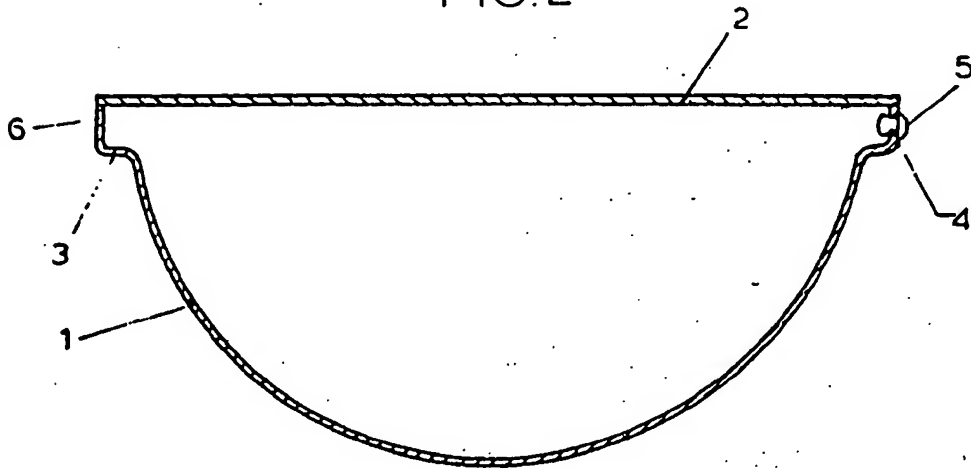


FIG.2



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FIG.3

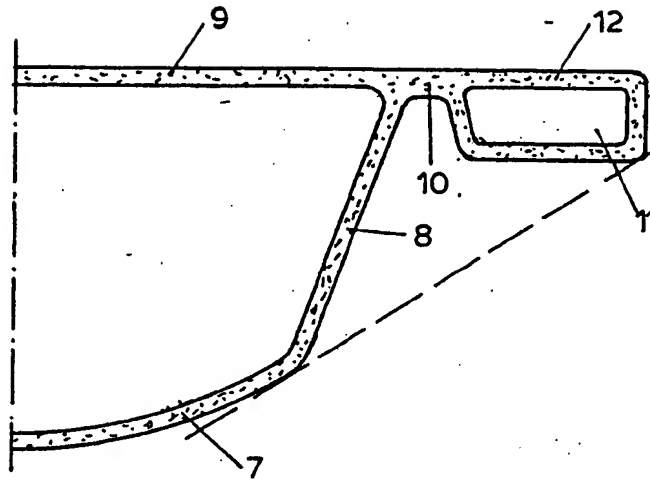
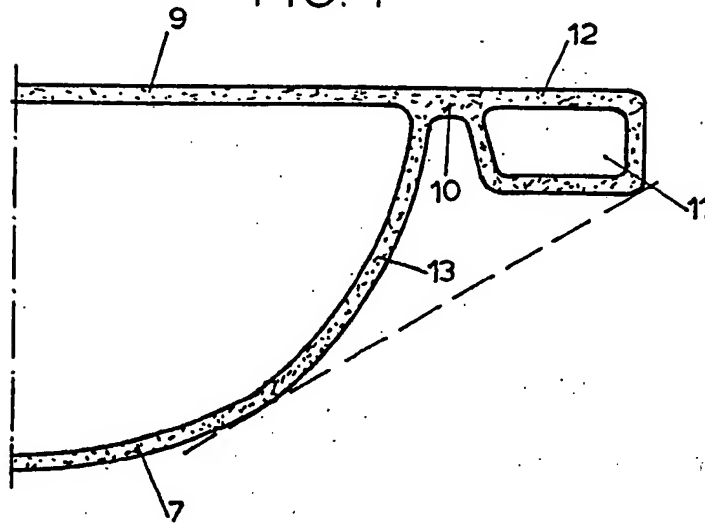


FIG.4



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European Patent
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EUROPEAN SEARCH REPORT

0134047

Application number

EP 84 20 0982

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 7)
X	DE-A-3 150 189 (B. MUTIUS) * Figures 1,2; page 9, lines 2,3; page 12, last paragraph - page 13, first paragraph *	1-4	A 63 B 23/00
A		6,12	
X	DE-A-2 528 217 (HUBBERT GEB. HROMADKA, URSULA; HUBBERT, JOACHIM) * Figure 1; page 4, lines 5-7; page 5, paragraph 5 - page 6, paragraph 2 *	1-4	
A	DE-A-2 032 544 (G. SCHILLING)	12	
A	FR-A-2 510 895 (C. DANINOS)	1	TECHNICAL FIELDS SEARCHED (Int. Cl. 7)
			A 63 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28-08-1984	Examiner VEREECKE A.
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